

# SKILLS AND PROJECT MANAGERS:

## RELATIONSHIP BETWEEN PERSONAL CHARACTERISTICS AND PERFORMANCE INDICATORS

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**Abstract:** Project management (PM) has gained relevance in organizations for being considered a tool that increases the efficiency of the projects, allowing better control of costs, schedule, and quality of projects managed under the methodology. The traditional definition of success in PM is based on the triple constraint (cost/timeline/scope) for every type of project executed. In contrast to this approach arises the adaptive approach suggested by authors who advocate that each project must be measured and managed differently. This approach includes the view that the project manager must assume the role of a team leader and that human and relational issues are relevant to the project's performance. This work consists of explanatory and quantitative research that relates the critical success of success with leadership skills. To define the capacities to be studied, four leadership theories served as the basis for the study. The results demonstrate that the project manager's leadership skills significantly impact some critical success factors while did not impact others. The comprehension about how the leadership skills of the project manager impact the critical factors of success of the project can both bring greater effectiveness in the recruitment process, development, and direction of project managers career, as well as assisting organizations and managers who use techniques and tools of project management to assess better and define critical factor of success of the projects. To the project managers, this work can assist in the understanding of how to mobilize their leadership skills in more results and superior performance in their projects.

## INTRODUCTION

Recent research on project management (PM) shows that human, emotional and motivational aspects become relevant as project success factors (Anantatmula, 2010; Levasseur, 2010; Lloyd-Walker & Walker, 2011; Muller, Geraldi & Turner, 2012; Thamhain, 2011). However, the professional certification used by PMI for Project Manager, Project Management Professional (PMP), doesn't focus on the leadership skills of the project manager. Despite the theme of leadership in PM being relevant to the practice, the quantity and size of the academic studies of the area find space for exploration (Palacios et al., 2013).

Separately, the PM and the leadership area receive the attention of academia, which is concerned to understand and define their impacts in the result of companies, as can be seen in the work of Ancona and Caldwell (1992); Gomes, de Weerd-Nederhof, Pearson, and Cunha (2003); Hambrick and Mason (1984); Harter, Schmidt, Killham, and Agrawal (2009); Lieberman and O'Connor (1972). Despite all the research and acceptance by technical and PM tools organizations, the estimates are that 70% of projects fail considering the triple classic PM restriction (time, cost and scope).

Kerzner (2013) classifies the reasons for the failures of projects in three categories: planning, scheduling and incorrect estimates; leadership problems, low morale of the team, lack of motivation, poverty in interpersonal relationships and low productivity; low personal and corporate engagement, lack of commitment of employees, delay in solving problems, unresolved internal policies and conflict of priorities. Shenhar (2004) adds that one of the fundamental principles to achieve the projects success, is to make the project manager the responsible leader for the project's strategic outcomes linked to the business and not exclusively to the triple constraint.

The vision of making the project manager the business leader, is considered by several authors as a fundamental premise for a greater commitment of staff, improve productivity, troubleshoot with agility, contribute to the organizational alignment and with that generate competitive advantage for the business

(Levasseur, 2010; Mintzberg, 1994; Porter, 2008; Shenhar, 2004). However, the definition of what should be the new profile of the project manager and which social skills (soft skills) more relevant to perform the task still requires further discussion (Anantatmula, 2008, 2010; Thamhain, 2004, 2011).

By the foregoing, understand what skills of project managers are relevant to the practice and which of these skills relate to the ability of the leadership of the project manager can make a contribution to the field of study. Considering contributing to the field of leadership in PM, this paper search to study the leadership skills of the project manager and the impacts on critical factors of success of the project as the main theme.

The paper is divided into five parts. Below is presented the theoretical foundation on the theme of leadership and performance in projects. Following, we deal with the methodology used for the paper. The results are presented and discussed in depth in the fifth part. Finally, there are the final considerations on the leadership skills of project managers and the performance of projects.

## THEORETICAL FRAMEWORK

Kerzner (2013) argues that most parts of projects fail to achieve the desired results due to issues related to team performance, as lack of commitment, lack of clarity on the tasks, low morale, conflicting relationships, and low productivity. However, critical factors of success that can accompany these aspects are still a field to be explored (Anantatmula, 2008). It was defined as a basis for this paper the Anantatmula model (2008), adapted as a research tool to better understand the participants. The choice was made by the comprehensiveness and the alignment of the model with the work of several authors of the area:

**a)** Define and clarify the goals of the project. The definition of the objectives and deliverables of the project, especially in the early stages is critical because the late incorporation of features and requirements may lead to exceeding deadlines and costs (Müller et al., 2012; Pinto & Slevin, 1987; Thamhain, 2004, 2011).

**b)** The clear definition of roles and responsibilities of the participants in the project without ambiguity or overlapping roles, decreases the level of conflict in the team and improves the performance of the team to facilitate the use of the expertise of the team members, also facilitating to the project manager provides individualized support (Anantatmula, 2008; Thamhain, 2004, 2011).

**c)** Failure to communicate clearly and constantly the expectations of stakeholders, leads to failure to achieve the expectations of the project, especially if internal and external stakeholders do not participate actively in the project, late incorporation of requirements can lead to exceeding deadlines and costs (Anantatmula, 2008; Pinto & Prescott, 1988; Pinto & Slevin, 1987; Thamhain, 2004, 2011).

**d)** The large part of the organizations manage projects without formal procedures established, so that, the design team constantly depends on the presence of the project manager to perform their work, leading to low productivity and team engagement (Anantatmula, 2008; Kerzner, 2013; Shenhar, 2004; Thamhain, 2004, 2011).

**e)** The establishment of an environment of trust is essential for problem-solving, generating an impact on motivation and team cohesion. This environment is influenced by organizational culture and leads to transparent communication, collaboration, cooperation and openness to relationships (Anantatmula, 2008; Goleman, 1998; Thamhain, 2004, 2011).

**f)** Obtain organizational support for the project in question is critical, especially on the need for any change or adaptation to the original plan. The organizations deal with limited resources, and these are usually managed by line managers, who in turn have individual targets linked to budget to fulfill. (Anantatmula, 2008; Kerzner, 2013; Shenhar, 2004; Thamhain, 2004, 2011).

**g)** The clear definition and constant communication of the mission of the project facilitate the process of monitoring of deliverables and project success, generating resource optimization, motivation, and

excellence in performance. It is also an opportunity to recognize the results and the efforts of the project team, correct targeting and sedimentary team learning (Anantatmula, 2008; Kerzner, 2013; Pinto & Prescott, 1988; Pinto & Slevin, 1987; Shenhar, 2004; Thamhain, 2004, 2011).

Anantatmula (2010), proposes a model that there is a hierarchy in order of relative importance between items and the fact that they come in a structure of cause and effect.

## CONCEPTUAL MODEL AND HYPOTHESES

The hypotheses were formulated to test four theories of leadership (**Figure 1**):

- (1) theory of goal orientation;
- (2) theory of self-confidence;
- (3) the theory of adaptability (4) Theory of emotional intelligence.

The goal orientation theory, becomes relevant to the leader's performance as it influences the way that the individual deals with adversity, indicating whether will have a well-suited answer by putting the fullness of their cognitive skills on behalf of the solution or it will have an unadapted answer avoiding the adversity for fear of criticism (Dweck, 2000; Dweck & Leggett, 1988).

Well adapted answers are related to the learning goal orientation, individuals with this type of guidance are motivated by self-development, seek to master their skills in challenging situations and facing adversity, are creative in finding solutions, do not give up easily when faced with adversity, and accept the risk that this always brings an opportunity of learning intrinsically, have little or no interest in the search for culprits. The predominant belief of these individuals is that success is a function of learning and effort, skills are elastic, liable to be developed throughout life through practical experiences, especially under new or unusual situations (w. Cron, Slocum, & Vandewalle, 2002; Cron, Slocum, VandeWalle, & Fu, 2005; Dragoni, Tesluk, Russell, & Oh, 2009; Don VandeWalle, Brown, Cron, & Slocum, 1999).

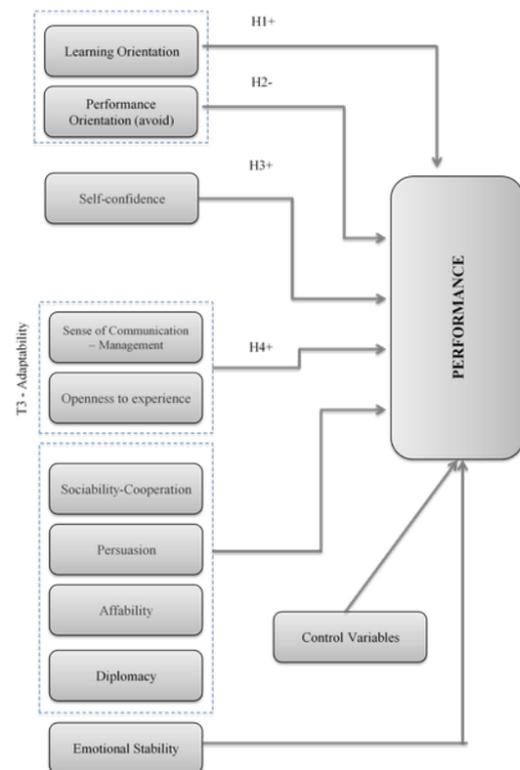


Figure 1 - Conceptual model and expected relationships.

For these reasons it is proposed the following hypothesis:

H1 - Project managers with learning goals orientation positively impact critical factors of the project success.

The goal orientation theory t (1) includes, in addition to learning orientation, performance orientation that distinguishes between proving and avoid. Individuals with performance-oriented direct their behavior in the pursuit of third-party approval as well as avoid their criticism. The person who has this kind of guidance the goals, when in unusual or challenging situations present an unadapted response especially when the situation requires the use of an ability that he does not dominate (W. Cron et al., 2002; Cron et al., 2005; Don VandeWalle et al., 1999).

These individuals perform well their tasks when relying on their skills, but in situations where these are put in doubt either by themselves or by third parties

feel threatened and their performance tends to decrease. Avoid challenges, and on adversity feature low interest in the task and direct little effort to achieve success (Cron et al., 2002; Cron et al., 2005; Dragoni et al., 2009; Duda & White, 1992; VandeWalle et al., 1999).

The two types of guidance the performance targets have distinct consequences in practice, while individuals who have performance goal (proving) can, in the short term, present a good performance in known tasks and/or receive positive feedback on their work, however, to collect negative feedbacks or fear them, submit ill-adapted answers and lose performance. This feature can cause the performance of this individual to present short-term oscillation making more sense a long-term observation that is beyond the scope of this work (Anderson, Brion, Moore, & Kennedy, 2012; Dweck, 1986, 2000; Dweck & Leggett, 1988).

On the other hand, the performance goal orientation

(avoid), has more severe consequences and even more noticeable, poorly adapted features are more evident and constant, being possible to measure with the tools used in this study and therefore this object.

These considerations lead to the following hypothesis, concerning orientation and performance avoid:  
H2 - Project managers with performance orientation (avoid) negatively impact critical success factors of the project.

Self-confidence as a factor of performance is studied in theory (2), having been pointed to in the literature as a predictive capability of superior technical performance. Research shows that self-confident people are most persuasive, have a higher social status and are judged as having greater credibility by the working team (Anderson et al., 2012; Moore & Cain, 2007; Sah, Moore, & MacCoun, 2013; Tenney, MacCoun, Spellman, & Hastie, 2007; Van Zant & Moore, 2013).

When considering the definition of leadership as a condition attributed by the followers (Young & Dulewicz, 2008), to the detriment of position or job, self-confidence becomes an intrinsic condition of leadership because in practice betting to follow a leader since this show, by means of non-verbal language, self-confidence in his leadership skills (Van Zant & Moore, 2013).

Seligman (2002) one of the pioneers of positive psychology shows that individuals more self-confident are also more optimistic and deal better with adversity, dealing with difficult situations persist for longer, in work activities they proposed higher targets and featured superior cognitive conditions on the tasks.

Even though studies suggest that self-confidence or overconfident can lead to situations that negatively impact the performance of the individual into three aspects; social status, credibility and decision-making (Moore & Cain, 2007; Puri & Robinson, 2007; Sah et al., 2013; Simon & Houghton, 2003; Tenney et al., 2007; Van Zant & Moore, 2013).

It has not been set a clear boundary between self-confidence and the excess of it on researches, making the hypothesis of overconfidence not object of this study, under the assumption that cases of excessive self-confidence are rare cases.

Therefore, it is considered the following hypothesis:  
H3 - Self-confidence of the project manager positively impacts critical success factors of the project.

As shown in the theoretical review the adaptability appears not as an isolated capacity, but as a set of factors and characteristics that integrated allows the leader to promote on your team the ability to respond proactively to problems inherent in the current business context. Transposing this context for the modern PM, you can make a relationship with the adaptive PM model proposed by authors such as Bennis and Thomas (2002); Crossan (1998); Heifetz, Grashow, and Linsky (2009); Shenhar (2004); Useem (2010) among others.

Among the capabilities identified as members of the leader's ability to adapt appears the sensemaking, relationship, vision of the future and the openness to experiences (Crossan, 1998; Heifetz et al., 2009; Useem, 2010). This paper does not propose to measure all of the capabilities mentioned both by the fact that they must work together (Ancona, Malone, Orlikowski, & Senge, 2007), and the limitation of the tool, however it is proposed to measure the opening to the experiences and ideas of others ingredients regardless of sensemaking and forward-thinking are key to adaptability capacity.

According to what has been completed the following hypothesis is made:

H4 - The capacity of adaptation of the project manager positively impacts critical success factors of the projects.

Emotional and social skills are presented with a relevant role in the leading role of the project manager. The project manager works in matrix organizations and uses manpower that should be subordinate to their commands and decisions

without having formal authority, this officially assigned to line managers. In this way the social skills and emotional stability of the project manager, represent a relevant role in the performance of the projects. The project team members want to be informed, and also convinced of their roles, and it persuaded to give their best for the success of the project in question. Considering an environment where resources are scarce and the attention contested by multiple demands and projects, social skills become even more relevant to the success of the project (Anantamula, 2008; Christenson & Walker, 2004; Pinto & Prescott, 1988; Thamhain, 1999, 2004).

Even in this field the transformational leadership theory suggests relationship between social skills both with the charisma of the leader, as in individually this treats his followers, bringing consequential psychological benefits to the team that responds in turn with a superior performance (Avolio & Bass, 1999; Avolio, Yammarino, & Bass, 1991; Bass, 1985; Dvir, Eden, Avolio, & Shamir, 2002; Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996; Philip, Podsakoff, MacKenzie, & Bommer, 1996).

In the field of theories related to emotional intelligence highlights the impact of social skills in motivation and performance of staff. From the social skills the team convinces to perform effort and put into practice the creativity willingly, motivating themselves intrinsically (Gardner, 1999; Goleman, 1998). Several psychological studies indicate that to deliver higher levels of quality and creativity is the intrinsic motivation that counts (Amabile & Kramer, 2011; Csikszentmihalyi, 2008; Lyubomirsky, King, & Diener, 2005; Seligman, 2002).

The emotional stability in turn is pointed to as a basis for decision-making and more effective troubleshooting, as well as to exercise social skills effectively (Dvir et al., 2002; Gardner, 1999; Goleman, 1998; Seligman, 2002).

Before the exposed, below the hypotheses relating to social skills.

H5 – The social skills of project managers positively impact critical success factors (CSF) from the project.

H6 – The emotional stability of project managers is positively related to critical success factors (CSF) from the project.

**METHOD AND RESEARCH TECHNIQUES**

The method used in this study is explanatory research, this type of research aims to identify causal relationships based on quantitative measures (Pinsonneault & Kraemer, 1993). Data collection in this type of research can be obtained through questionnaires in scale (Freitas, Oliveira, Saccol, & Moscarola, 2000).

**Research Instruments**

The research instruments used in this work are the Sócrates personality assessment, questionnaire of the orientation to goals and the questionnaire of the projects performance as shown below.

**Sócrates Personality Assessment**

Sócrates is a questionnaire that provides a functional and customized analysis of the responses of a subject and that encourages a better understanding of themselves in terms of professional and personal skills. As the L.A.B.E.L. (approved by the Federal Council of Psychology in 2004) and the Comper (whose complexity of interpretation makes an impossible use in a large-scale by the professionals), this new psychometric instrument was developed using the Functional Method whose technical details escape the scope of this paper.

The Functional Method was born from the realization that the classical theory of the tests used for the construction of all the evidence, whether performance (skills and knowledge – where there’s always a correct answer) or subjective assessment (typical attitudes and behaviors - where there’s only one expected response) was conceived and designed to build aptitude tests whose items are simple, raising objective responses (true or false) explained by the existence of a single underlying latent trait ability, who needs a uni varied approach. (Moytica, 2013).

In other words, what Sócrates does is by means of nonparametric statistics understand the style of response by searched, his tendency to exaggerate and compare it with a database of n = 1467, to compare their level of competence with the base standard. Having as a principle that we judge a person competent in an activity comparing its performance with others. Moytica (2013).

**Table 1** shows the capabilities evaluated by Sócrates and its relation with the theories of leadership.

Capabilities	Description	Theoretical Reference
Self-Image	High scores on this scale (G > 60) indicate a high positive self-image. Scores between 40 and 60 on this scale indicate a subtly differentiated self-image. Scores <40 or even 30, can be interpreted as a sign of an undervalued self-image.	Self-confidence (Anderson et al., 2012; Hoelzl & Rustichini, 2005; Kennedy, Anderson, & Moore, 2011; Sah et al., 2013; Simon & Houghton, 2003; Tenney et al., 2007).
Diplomacy	Compared with a standard (G score), high values on this scale (G>60) characterize people who adapt easily to changing situations and know how to take advantage of every situation thanks to qualities like empathy, generosity and fluency in communication. Low scores (G<40) featuring people who tend to be tense and restless, sometimes we need tact to lead with them, for being very convinced to be certain.	1-Emotional intelligence – Autoregulation/Empathy/ Social Skills (Gardner, 1999; Goleman, 1998). 2-Adaptation (D. Ancona et al., 2007; Crossan, 1998; Heifetz et al., 2009; Useem, 2010).
Persuasion	Compared with a standard (G score), high values on this scale (G > 60) characterize people able to motivate and inspire actions through speeches or teachings. They have qualities of uniting people and can change the behaviors for the quality of the messages that they transmit. Low scores (G < 40) featuring little interested people by the affective and social relations, because they do not seek nor change nor the novelty.	1-Self-reliance (Anderson et al., 2012; Hoelzl & Rustichini, 2005; Kennedy et al., 2011; Sah et al., 2013; Simon & Houghton, 2003; Tenney et al., 2007). 2-Transformational leadership (Avolio & Bass, 1999; Bass, 1985; Dvir et al., 2002; P. M. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).
Sense of Communication - Management	Compared with a standard (G score), high values on this scale (G>60) characterize people particularly able to structure and organize the work by focusing on the quality of human relations thanks to their communication skills. Fair and open the very different ideas are adapted to his interlocutors, help to resolve conflicts, create links and harmonize existing relations. Low scores (G< 40) featuring independent people but little concerned by the leadership.	1-Transformational Leadership (Avolio & Bass, 1999; Bass, 1985; Dvir et al., 2002; P. M. Podsakoff et al., 2003). 2-Emotional Intelligence - Autoregulation/empathy/social capacities (Gardner, 1999; Goleman, 1998). 3-Adaptation (D. Ancona et al., 2007; Crossan, 1998; Useem, 2010).
Sociability - Cooperation	Compared with a standard (score G) high values on this scale (G>60) characterize people sociable and communicative, always listening to the people’s problems. Their social needs are high; they are generous and cooperate easily. Low scores (G < 40) featuring martial people, who seek to achieve superior hierarchical situations.	1-Emotional Intelligence - Empathy / Social Capacities) (Gardner, 1999; Goleman, 1998)
Openness to Experience	Compared with a standard (G score), high values on this scale (G > 60) featuring people who have imagination, tolerance and creativity in the field of ideas and actions. In the professional field, they promote innovation and adapt easily to changes. Low scores (G < 40) characterize people conscientious, disciplined, who plan carefully their projects and actions.	2-Adaptation (Ancona et al., 2007; Crossan, 1998; Heifetz et al., 2009; Useem, 2010).
Affability	Compared with a standard (G score), high values on this scale (G > 60) characterize people sociable, sincere and unselfish. They seek the company of people and can spend their welfare before their own. Low scores (G < 40) featuring people with few social needs, freestanding and preferring solitude to large gatherings.	1-Adaptation (Ancona et al., 2007; Crossan, 1998; Heifetz et al., 2009; Useem, 2010). 2-Emotional Intelligence - Empathy/ Social Capacities (Gardner, 1999; Goleman, 1998)

Table 1 - Measured Skills.

		3-Transformational leadership – charisma/ individualized consideration (Avolio & Bass, 1999; Bass, 1985; Dvir et al., 2002; P. M. Podsakoff et al., 2003)
Emotional Stability	Compared with a standard (G score), high values on this scale (G > 60) featuring confident people, satisfied with themselves, optimistic and positive. Low scores (G < 40) featuring sincere people and with a certain vulnerability or discomfort.	1-Emotional Intelligence (Autoregulation) (Gardner, 1999; Goleman, 1998).

Table 1 - Measured Skills. (continuity)

**Questionnaire for Goal Orientation**

To measure the kind of guidance the targets (independent variables) we used the questionnaire with 13 goals-oriented items, developed and validated by VandeWalle and Cummings (1997). Five items correspond to the learning goals orientation, 4 items to guidance the performance targets (prove) and 4 items to guidance the performance targets (avoid). A Likert scale of 1 (strongly disagree) to 7 (strongly agree) is used to measure each of the items, the type of goal orientation is obtained by the average assessment of their corresponding items as the work from Cron et al. (2005). The questionnaire is sent by email through the SurveyMonkey tool.

**Independent Variables**

Table 2 illustrates how the capacities shall be measured, independent variables with their respective instruments and measuring range.

**Dependent Variables**

The seven critical success factors adapted by (Anantatmula, 2008) listed in the theoretical review, represent the dependent variables and will be measured by means of a Likert scale ranging from 1 (strongly disagree) to 5 (I completely agree), as well as the goals orientation questionnaire sent by email using the SurveyMonkey tool and described below: CSF 1: clarity of roles and responsibilities of all involved, there is no ambiguity and or overlapping responsibilities (clarity of roles and responsibilities); CSF 2: Clarity of stakeholder expectations for the entire project team, and constantly reinforced (Clarity of expectations of stakeholders); CSF 3: Clarity of objectives, goals and requirements of the project in question for all involved (Clarity of objectives); CSF 4: Efficient and clear execution process of the project, followed with discipline with or without the presence of the leader/project manager (execution proceedings); CSF 5: the psychological environment of

Capabilities	Instrument	Independent Variables, Related	Hypotheses	Scale
Goal Orientation	Questionnaire of goals and guidance type.	Guidance the goals proved good performance. The goal orientation to avoid bad performance. Guidance to learning goals.	H1+, H2-	7 point scale.
Self-confidence	Sócrates	Self-confidence.	H3+	100 point scale.
Adaptability	Sócrates	Sense of communication – management. Openness to experience.	H4+	100 point scale.
Social Skills	Sócrates	Sociability – Cooperation, Gentleness, Persuasion, Diplomacy.	H5+	100 point scale.
Emotional Stability	Sócrates	Emotional Stability	H6+	100 point scale.

Table 2 - Independent variables.

the project team can be trusted, where everyone has the opportunity to put their point of view, knowing that this will be respected without risk of retaliation (psychological environment); CSF 6: access to organizational support, resources and organizational tools from other areas and line managers (access to organizational support); CSF 7: Clarity in the mission and objectives in the project, allowing formal assessments of deliverable and defined the project success criteria (Clarity in the mission and formal evaluations).

**Control Variables**

Control variables were considered those that can impact the results, and the projects that are not necessarily linked to interpersonal skills directly. One of them is linked to the technical skills of the project manager and involves the PMP certification, will be treated as Dummy variables, with value 0 if not possess training, and 1 for the opposite. The variable project manager experience in the profession will be measured in years. The third control variable will be measured by the complexity of the project and will include the following Likert scale: strategic project or innovative (high level of attention given by senior management) value 5; Project related to day to day, maintaining the company's routines (low level of attention given by the senior management) value 1.

**Outline of Research**

In the first phase of the research were sent emails to project managers, which contained the instructions for completing the Socrates and the individual password, required to fill in the questionnaire, in addition to the link via SurveyMonkey to fill in the questionnaires of the orientation to goals and the project performance. The second phase was vacant from Socrates to each of the participants, followed by the evaluation of responses to these questionnaires. In total 240 emails were sent, 96 were answered and 80 were validated in a process that lasted 30 days. The fourth phase was the tabulation of the results into spreadsheets so they could be analyzed by statistical

software, as the results are provided in pdf this release is manual. The fifth stage was the multivariate statistical analysis with the SPSS software followed by the construction of models and validation of hypotheses.

**RESULTS**

The descriptive results show that 60% of the projects involved in the study are strategic or innovative and that demand a high level of attention of the senior management of the company, 20% of the projects are of continuous improvement, requiring medium high level of attention by the management and 20% are projects linked to the routine requiring low-level of attention of upper management. In relation to population, 33% of project managers: participants have the PMP certification while 67% do not have.

Table 3 shows the matrix of correlations between all variables with their respective levels of significance. For this table were considered the significance of 5% and 1%. The variable performance-orientation (avoid) presented a low average compared with learning orientation, 2.68 against 5.58, what in some ways may have interfered in the analysis of the hypothesis H2 as reviewed in more depth in the discussions of the result. The analysis of regression table did not submit evidence of multicollinearity, so is therefore valid the application of models based on multiple regressions.

The models were elaborated considering the theories to be tested and the dependent variables (CSF). For each of the performance variables were drawn 7 models as shown in Table 4 presents the models numbered 1 to 7, all pertaining to CSF on the clarity of the roles of the participants in the project.

Model 1 presents the control variables. Model 2 tests the theory (1) of goal orientation and presents results in the direction predicted by learning orientation in hypotheses H1, but not confirming Model 3, performance-avoidance in H2. Model 4 tests the theory (3), adaptation capacity and the lack of

significance in opening to changes does not confirm the hypothesis H4. In model 5, H5 is not corroborated. and 6 present results corroborate with the H6 hypotheses that test the theories linked to emotional intelligence in the referred to social skills and emotional stability of the leader. The model 7 corroborates with the hypotheses H1, H3 and H5.

	Average	D.P.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Learning orientation	5,58	0,87	1																			
2 Performance orientation avoid	2,68	1,09	0,028	1																		
3 Self-confidence	45,43	20,85	,344**	-,291**	1																	
4 Openness to experience	49,06	18,75	0,143	-,340**	,223*	1																
5 Sense of communication	49,68	18,46	0,134	0,032	,360**	-,314**	1															
6 Diplomacy	47,48	26,31	-0,093	0,066	-,489**	0,112	,290**	1														
7 Persuasion	54,16	20,18	0,162	-0,138	,403**	-,367**	,598**	0,203	1													
8 Sociability cooperation	48,88	27,15	-0,167	0,163	-,608**	-0,079	,306**	,937**	0,100	1												
9 Affability	48,19	25,32	-0,152	0,119	-,543**	-0,005	,271*	,937**	0,063	,972**	1											
10 Emotional stability	46,69	20,34	0,102	-,273*	,326**	,424**	0,129	0,207	0,045	0,097	0,206	1										
11 Type of project	1,31	0,60	-0,147	0,055	-0,187	-0,120	-0,082	0,038	-0,050	0,080	0,033	-,283**	1									
12 Time of performance	8,50	5,04	-0,085	0,098	0,120	0,044	-0,030	-0,019	-0,012	-0,044	-0,015	0,114	-,305**	1								
13 PMP	1,58	0,50	0,101	0,055	0,023	-0,059	0,066	-0,068	-0,013	-0,031	0,003	-0,063	0,161	-,227*	1							
14 Roles and responsibilities	3,94	1,16	0,187	-0,116	0,042	0,020	0,167	0,216	0,137	0,200	,244**	0,172	0,184	0,050	0,167	1						
15 Expectations of stakeholders	4,04	0,96	,316**	-0,004	-0,012	0,135	0,055	0,058	0,039	0,065	0,063	0,128	-0,095	0,110	,595**	1						
16 Goals and purposes	4,05	0,88	0,144	-0,104	,347**	-0,016	0,204	-0,053	0,116	-0,050	0,035	,310**	0,040	0,052	0,075	,467**	,533**	1				
17 Running processes	3,53	1,20	0,187	-0,101	0,125	0,085	0,156	0,195	0,121	0,111	0,162	0,200	-0,131	0,116	0,032	,520**	,386**	,366**	1			
18 Psychological environment	4,18	0,83	0,129	0,071	-0,005	0,015	0,107	0,134	0,095	0,088	0,121	-0,138	0,105	-0,123	,217*	0,125	0,192	0,138	,306**	1		
19 Organizational support	4,04	0,88	0,100	-0,071	0,114	0,134	-0,064	-0,043	-0,061	-0,075	-0,031	,285**	-0,045	-0,008	0,204	0,098	0,028	,235*	0,178	0,193	1	
20 MVV formal evaluations	3,90	0,97	,269*	-0,087	0,208	-0,068	0,070	-0,064	-0,055	-0,133	-0,065	0,100	-0,052	0,045	,294**	,492**	,622**	,404*	,493**	,295*	,320**	1

Table 3 – Matrix of correlations between all variables with their respective levels of significance.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Control Variables	Goal orientation	Self-confidence	Adaptability	Emotional Intelligence Social Skills	Emotional Intelligence Emotional Stability	All Variables
<b>Goal orientation</b>							
Learning orientation		0.349***					0.289**
Performance orientation avoidance orientation		-0.175					-0.129
<b>Self-confidence</b>							
Self-confidence			0.268**				0.519**
<b>Adaptability</b>							
Adaptability				0.207*			-0.294
<b>Emotional Intelligence Social Skills</b>							
Social Skills					0.095		0.476**
<b>Emotional Stability</b>							
Emotional stability						0.275**	0.114
<b>Control variables</b>							
Project type	0.066	0.155	0.109	0.108	0.062	0.149	0.176
Experience	0.067	0.148	0.056	0.082	0.067	0.063	0.087
PMP cert.	0.006	0.057	0.077	0.035	-0.006	0.016	0.086
F	0.158	2.453**	1.423	0.924	0.288	1.530	2683***
R <sup>2</sup>	0.006	0.141	0.070	0.046	0.015	0.075	0.254
R <sup>2</sup> Adjusted	-0.033	0.083	0.021	-0.004	-0.037	0.026	0.159

Dependent variable: Critical Success Factors  
 \*, \*\*, \*\*\* denotes significance at 10%, 5% and 1% respectively.

Table 4 – Regression models

**DISCUSSION**

This work is based on the discussion of the impacts of the leadership skills of the project manager on the performance of projects, supported by several studies on the topic among which we highlight the work of Anantatmula (2008, 2010); Geoghegan and Dulewicz (2008); Lloyd Walker and Walker (2011); Müller et al. (2012); Müller and Turner (2010); Shenhar (2004); Thamhain (2004, 2011). We sought to answer the research question: what leadership skills of project managers have an impact on the performance of projects? The theoretical framework on which we based the work was based on literature of leadership skills highlighted in different leadership theories (Avolio & Bass, 1999; Bass, 1985; Dvir et al., 2002; Goleman, 1998; Van Zant & Moore, 2013; Don Vandewalle, 2001), as well as in the studies of CSF used in leadership research in projects (Anantatmula, 2008; Pinto & Prescott, 1988; Pinto & Slevin, 1987; Thamhain, 1999, 2004). The results supported some hypotheses and pointed out that among the leadership skills of project managers which impacts in a relevant way the performance of the project, the orientation to learning deserves greater prominence. Analyzing the dependent variables of the CSF that have suffered greater influence of the leadership skills of the project manager were those relating to; definition of roles and responsibilities, goals and purposes, clear mission and monitoring of deliverables. The CSF related on the organizational support was influenced only by one variable, the emotional stability, similar situation to the CSF related on the stakeholders' expectation who suffered the only influence of the variable learning orientation. The other CSF, relating to the psychological environment and to the processes of execution were not affected by the skills of project managers. The hypothesis 1 proposed that project managers that have learning-orientation positively affect the CSF. The results obtained showed that this ability is positively related to 3 of 7 CSF, and may be considered along with the emotional stability the capacity impacts positively the largest amount of CSF used in

By analyzing more systemic these results, we can conclude that the project manager with this type of goal orientation, focus more on the means for achieving the goal than the end result itself, which is consistent with the theory that points this individual presents as main mental model, the belief that success (outcome) is a function of effort and learning (Dragoni et al., 2009; D VandeWalle & Cummings, 1997) and as a result of this mental model, the project manager with this feature demonstrates preference to focus on what's closest to its area of influence, leaving the search for organizational support and clarification of objectives and purposes in the background. The obtained results partially support the hypothesis H1 that proposed that learning orientation of project managers to positively impact the performance of the project. The hypothesis H2 proposes that the performance orientation (avoid) negatively impacts project CSF, this hypothesis was based on literature on the topic that points out that the individual with this kind of orientation diverges from situations where it can be exposed to errors, delays the decision-making process and presents low tenacity against adversity. (Dragoni et al., 2009; Don Vandewalle, 2001). Despite the theory fit the hypothesis in question, performance orientation (avoid) just presented the expected impacts by hypothesis in the CSF concerning roles and responsibilities. Were not recorded significant impacts of this variable in other CSF, therefore the hypothesis H2 was not supported, this result that is not according to studies conducted by Don Vandewalle (2001), Dweck (1986) and Elliot & Church, (1997); Elliot & Harackiewicz, (1996). Although in this study the proposition has not been supported this result must be analysed with caution due to population research. According to **table 1**, the level of performance-orientation (avoid) presented by the participants of the study was low, averaging of 2.68, if compared with the result of learning orientation, an average of 5.58. It is reasonable to assume that the choice of a population to provide higher levels of performance goals

orientation (avoid) brings different results obtained in this research because this is a gap to be filled in future studies.

The hypothesis proposes that the H3 self-confidence of the project manager positively impacts the critical success factors of the project. The result of this study found positive impacts of this competence in the indicators; clarity of goals and results and clarity of mission and formal assessments, supporting, therefore, the H3 hypothesis. The results presented are in accordance with the works presented by Anderson et al. (2012), Price and Stone (2004); Van Zant and Moore (2013) that indicate a higher social status by individuals with a higher level of self-confidence. These results also corroborate with the proposition that more self-reliant individuals are also more optimistic (Seligman, 2002, 2005), and propose more challenging goals and persist more in adversity. Were precisely the indicators related to the goals and monitoring of these that have been more impacted by the independent variable, the results suggest that project managers more self-confident focus on results and monitoring of the project in question.

Two independent variables were defined as linked to the adaptability of the project manager, openness to experience and the sense of communication management. The results obtained show that only one of the variables, the sense of communication-management proved to be meaningful for the CSF concerning roles and responsibilities, which are in line with proposed by the theory that the Manager with the ability to adapt is more open to hearing opinions and adapt when required (Ancona et al., 2007; Crossan, 1998; Useem, 2010), however insufficient to support the hypothesis formulated. Considering also that the variable openness to experiences showed no significant correlation with no performance indicator. The fact of the hypothesis H4 was not supported must be analyzed carefully under the understanding that this fact does not mean that this ability isn't important to the project manager, the tools used to measure the dependent variables and the CSF defined to measure project performance, were

chosen within a comprehensive context of leadership and not specific. Because of the importance granted by literature to this theme by authors among which stands out (Carvalho & Rabechini JR., 2005; Griffin & Hauser, 1996; Shenhar & Dvir, 2007; Söderlund, 2011) suggests other specific studies on the adaptability of the project manager and the Adaptive model of PM.

The hypothesis H5 proposes that the competences linked to the IE-social skills of the leader positively impact critical success factors of the project. Were defined as competences linked to the social skills of leading the independent variables: sociability - cooperation, persuasion, affability and diplomacy. The results obtained show significant impacts of these competencies in CSF relating to roles and responsibilities, goals and purposes and mission and monitoring of deliverables, thus partially supported the hypothesis H5. The results are in line with the theories that address these skills, emotional intelligence (Goleman, 1998) and transformational leadership (Bass, 1985), as shown in **table 05**.

The positive interaction between the emotional stability of the project manager and critical factors of success of the project was proposed in H6, results showed significant positive impacts to CSF concerning; roles and responsibilities, goals and purposes and organizational support which is in accordance with the theories elaborated on the theme. However it was expected significant impact of this variable on the psychological environment of the team, that was not found, which is at odds with the works of Amabile and Kramer (2011); Goleman (1998); Useem (2010); Young and Dulewicz (2008), which assumes that the emotional stability of the leader has a direct impact on the psychological environment of the team; the results allow to support partially the hypothesis H6.

**Table 05** presents a summary of the results of the hypotheses.

Hypotheses	Result
H1 - Learning orientation	Supported
H2 - Performance avoidance orientation	Not supported
H3 - Self-confidence	Supported
H4 - Adaptability	Partially supported
H5 - Social Skills	Supported
H6 - Emotional Stability	Partially supported

**FINAL CONSIDERATIONS**

This article aimed to analyze what are the leadership skills of the project manager that impact project performance. To this end, we worked with a personality assessment tool together with a structured questionnaire to measure the type of goal orientation and performance of critical success factors of the project. To this end, 260 emails were sent individually with the password of the Socrates and additionally a goals-oriented questionnaire and evaluation of project performance. In total 99 responses were collected and considered for the final 83, for presenting complete data.

The response to the survey question: what are the leadership skills of the project manager that impact critical success factors of the project? Led to a result that points in the direction of 3 theories of leadership that significantly impact the performance of the project's performance indicators, are: the self-confidence of the project manager; the type of goal orientation; the capacities related to the theory of emotional intelligence; those relating to social skills and those relating to emotional stability: the adaptability of the leader was not relevant in this study, as well as the adverse effect of guidance to performance - avoid.

The study sought to contribute by means of a comprehensive approach to both field studies theoretical and practice. Understanding about how the leadership skills of the project manager impact the critical factors of project performance, can bring greater effectiveness in the recruitment process, development and direction of the project manager's career, as well as assisting organizations and managers who use techniques and tools of project management to better assess and define critical success factors in projects. To project managers this work can help to put into practice their leadership skills effectively, to generate more positive results and superior performance in their projects.

Despite the methodological rigor and effort employed in research methods is important to point out the limitations of the study and indications of future

studies. First the amount of respondents (N = 83) is a limiter for the scope of research. One factor that was impacted by this limitation are the analyses in relation to project managers with performance targets (avoid), the possibility that this feature is rarer to find in practice suggests that a more comprehensive sample could evaluate these features through more comprehensive data.

Another point that deserves attention is the results for the adaptability of the project manager, the tools and methods in this study were not dedicated exclusively to the measurement of this competence and its impacts on the performance of projects. Not finding the relevance of this expertise to the project manager deserves to be investigated in future research focused on this issue. This commitment would aim to get a better understanding of the role of the project manager in relation to the adaptive approach in PM.

Data collection procedures were responses to assessment Socrates who owns their mechanisms to identify possible exaggerations in the form of answer, however project managers answered the indicators, while it would be ideal if they were answered by the managers and by the team. As suggests, research was conducted by Bass and Avolio (1999) and Katz and Allen (1985). However perform this kind of research without the institutional support of the company where the project managers act, generate various practical obstacles, however it is worth noting that the results were mostly consistent with the proposed hypotheses and with the prevailing theories in the area.

The critical success factors in this work were chosen by their relationship with human and relational factors, appropriate for the research question's answer. These CSF are considered as medium indicators, required in the process that takes the final result expected by the project. The expected results of a project are typically defined in terms of cost, time, scope, customer acceptance, profit, among others appointed by the literature. Research that can bind CSF of the leadership of project manager with final results of the projects is a suggestion of significant contribution to the field.

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